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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/519,618

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Egidio Berwanger

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EXAMINER

WEINSTEIN, LEONARD J

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,618

Applicant(s)

BERWANGER ET AL.

Examiner

Leonard J. Weinstein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendment of July 24, 2007. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 5-6, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. US 6,174,141. Song teaches all the limitations as claimed for a resonant arrangement for a linear compressor including: a non-resonant assembly formed by a motor 6 and a cylinder 4, a resonant assembly 230 formed by a piston 19 reciprocating inside the cylinder 3, the cylinder 4 being closed by a cylinder head 14 defining between a top portion of the piston 19 and said cylinder head 14 a compression chamber (D), an actuating means 7 coupled to the bottom portion of the piston 19, as shown in figure 8 with fasteners coupling element 7 with element 19, operatively coupling the piston 19 to the motor 6, and at least one spring means 232, mounted to the resonant assembly 230 actuating means 7 and which is elastically and axially deformed toward the displacement of the piston 19, characterized in that wherein the spring means 232 presents an elongated tubular body, as defined by element 232, which is coaxial in relation to the axis of the piston 19 and an end 19b operatively coupled to the actuating means 7 and an opposite end 19a operatively coupled to the non-resonant assembly 3, said tubular body, as defined by element 232, having at least part of the extension

thereof folded in circumferential sectors, as defined by intermediate sections of element 232, that are symmetric in relation to the axis of said tubular body, as defined by element 232, each circumferential sector, as defined by intermediate sections of element 232, being elastically deformed in the axial direction upon displacement of the piston 19; a resonant assembly 230 having circumferential sectors, as defined by intermediate sections of element 232, provided with the same cross section profile, as clearly seen in figure 8; and a resonant assembly 230 having circumferential sectors, as defined by intermediate sections of element 232, provided orthogonal to the longitudinal axis of the tubular body, as defined by element 232; a tubular body, as defined by element 232, presents a non-hollow lateral surface, with element 19b; and a hermetic compressor (fig. 8) comprises a hermetic shell 1, inside which are mounted the resonant 230 and the non-resonant assemblies 3, wherein it comprises another spring means 231 in the form of a tubular body, as defined by element 231, which is coaxial in relation to the axis of the piston 19 and having an end 223 affixed to the actuating means 7 and the other end affixed to the shell 1, as element 223 is in communication with element 10 which is thereby connected to element 1 by connecting members disposed below elements 3, 10 and 16 as shown in figure 8, said tubular body, as defined by element 231 having at least part of the extension thereof folded in circumferential sectors, as defined by intermediate sections of element 231, that are symmetric in relation to the axis of said tubular body, as defined by element 231, each circumferential sector, as defined by intermediate sections of element 231, being elastically deformed in the axial direction upon displacement of the piston 19.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. 6,174,141 in view of Thomin et al. 6,345,963. Song teaches all the limitations as discussed by fails to teach the following limitations that are taught by Thomin for resonant arrangement including: a circumferential sector 18 presenting a substantially "V" shaped profile (Fig. 2), each circumferential sector 18 being elastically deformed by variation of its respective dihedral angle (col. 6 ll. 40-44, col. 7 ll. 20-23; 30-34); and a resonant assembly for a compressor having circumferential sectors 18 having the same dihedral angle (Figs. 1-2). Song discloses the claimed invention except that the resonant assembly 232 is a spring instead of enclosed bellows type assembly. Thomin shows that a resonant assembly provided with circumferential sector having a substantially "V" shaped profile, each being elastically deformed by variation of its respective dihedral angle, considered here to be a bellows type elastic member, was an equivalent structure known in the art. In order to rely on equivalence as a rationale supporting an obviousness-type rejection, the equivalency must be recognized in the prior art. In re Ruff, 256 F.2d 590, 118 USPQ 340 (CCPA 1958). Thomin represents evidence that a bellows type elastic member and a spring were art-recognized equivalent structures for resonant assemblies. Therefore, because these two resonant assemblies were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a bellows type resonant elastic member for a spring. An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In re Fout, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

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6. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. 6,174,141 in view of Thomin et al. 6,345,963. Song teaches all the limitations as claimed including: a fixation of each end of a resonant assembly to the adjacent part defined by the cylinder 4 and the actuating means 7; a tubular body, as defined by element 232, has an end affixed, via element 124b as shown in figure 7, to the cylinder 4 and the opposite end affixed, via element 19b as shown in figure 8 being formed with element 19a which provides a seal between a compression chamber (D) and the area surrounding a cylinder 4, to the actuating means 7, in order to block the fluid communication, between the compression chamber 4 and the exterior of the cylinder 4 through gaps existing between the piston 19 and the cylinder 4. Song fails to teach the following limitations that are taught by Thomin including a fixation of each end, elements 13 and 14, to the adjacent part defined by the cylinder 6 and actuating means 29 obtained by one of the processes of welding, gluing and screwing, element 14 (col. 6 ll. 50-54) and element 13 (col. 7 ll. 30-32); and a tubular body 11 having an end 14 hermetically affixed to a cylinder 6 (col. 6 ll. 26-28) and the opposite end 13 hermetically affixed to an actuating means 29 (col. 7 ll. 36-38). It would have been obvious to one having ordinary skill in the art at the time of the invention to provide a resonant assembly hermetically fixed to a cylinder and actuating means of a linear compressor in order to reduce the number of mobile parts which undergo dynamic friction during operation (col. 5 ll. 27-32).

7. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song i.v. Thomin as applied to claim 7 above, and further in view of Imai et al. 6,485,267. A combinations of the references teaches all the limitations as discussed above including a tubular body 11 (Thomin) having one end 14 (Thomin) that is defined by a respective tubular 17 (Thomin) extension not presenting a circumferential sector 18 (Thomin) and dimensioned to

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provide a fitting 20 (Thomin) to the respective part 19 (Thomin) to which it is affixed; one adjacent part affixed to one end 14 (Thomin) of a tubular body 11 (Thomin) is provided with at least one circumferential tooth, area of element 15 (Thomin) immediately surrounding element 19 (Thomin) and below elements 20 (Thomin) and 23 (Thomin) as shown in figure 2 (Thomin), which is coaxial to the axis of a piston 28 (Thomin) for fitting said respective end, 14 (Thomin) via element 17 (Thomin); and one circumferential tooth, area of 15 (Thomin) immediately surrounding element 19 (Thomin) and below elements 20 (Thomin) and 23 (Thomin), being continuous (Thomin - fig. 2). However a combination of Song and Thomin fails to teach the following limitation that is taught by Imai for an arrangement having a tubular body 146 having both ends that are defined by a respective tubular extension not presenting circumferential sectors (fig. 3) and dimensioned to provide a fitting to the respective parts, elements 145 and 149, to which it is affixed; each end of the tubular body 146 is affixed to an adjacent part, elements 145 and 149, provided with at least one circumferential tooth, element 147 of 149 and element 148 of 145, which is coaxial to the axis of a piston 133 for fitting said respective ends and the circumferential tooth, element 147 of 149 and element 148 of 145, for each part being continuous (fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify both ends of a tubular body within a hermetic compressor to have extensions as well as modifying the components of a hermetic shell affixed to the tubular body to also have extensions to create an interlocking arrangement in which tubular body is securely arranged while limiting the degree of movement of the tubular body (Imai – col. ll. 42-49).

Response to Arguments

8. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard J. Weinstein whose telephone number is 571-272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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